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## **Exploring the effects of health shocks on antipoverty interventions: experience of poor beneficiary households in Bangladesh**

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# Exploring the effects of health shocks on antipoverty interventions: experience of poor beneficiary households in Bangladesh

Short title: Health shocks' effects on anti-poverty program

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## **Abstract**

How and whether health shocks impact poverty reduction interventions remains a largely unexplored topic to which not much attention has been paid. This study explored whether and how health shocks affect anti-poverty interventions targeted to extremely poor households using data from 8 focus group discussions (FGDs) and 12 case studies. Those in extremely poor households mostly experienced episodes of chronic disease that incurred greater healthcare costs, largely financed by the out-of-pocket payment system. The majority of those from poor households met healthcare costs by selling their means of livelihood, borrowing cash, and marketing physical assets. This study argues that livelihood support alone is likely to be insufficient to reduce poverty. Health needs, subsequently, should be prioritized while designing an anti-poverty program.

**Key words:** anti-poverty program, Bangladesh, chronic diseases, health shock, healthcare cost, NGO, out-of-pocket.

## 1. Introduction

The relationship between poverty and health shock, which is defined as “unpredictable illnesses that diminish health status” (Leive and Xu 2008) is intertwined (Grant and Hulme 2004; Meessen et al. 2003). Better health significantly helps reduce poverty at the individual and/or household level. **By** **in** contrast, ill health leads to impoverishment and diminishes people’s well-being. Globally, greater healthcare costs negatively affect individuals’ and/or household economies and leads to impoverishment. In 2015, the World Health Organization (WHO) estimated that globally, each year, 400 million people lack access to one or more basic healthcare services; 150 million suffer catastrophic healthcare expenditure due to the out-of-pocket (OOP) payment system and 100 million people are pushed into poverty (World Health Organization 2015). Even in the USA, a resource-affluent country, census results released in 2011 showed that 10 million Americans are pushed into poverty due to overwhelming healthcare costs (Collin 2011). Furthermore, the poor in low and middle income countries (LMIC) have relatively inadequate access to healthcare services and are thus placed in a disadvantageous position. Such disadvantages and deprivation often prevent the poor from accessing reliable health services and subsequently trap them into poverty (Peters et al. 2008).

Although Bangladesh’s health gains in past years have been remarkable and applauded by international communities, (Chowdhury et al. 2013; El et al. 2013), they are not enjoyed or distributed equitably throughout the population. Rather, the access to health and its outcomes vary with regard to income, gender, age, and geographical location (Gwatkin et al. 2004; Rahman et al. 2013). Members of extremely poor households are more likely to experience health shocks and vulnerabilities. Every year, approximately, 4–5 million people are forced into poverty due to greater expenditure caused by health shocks (Soor et al. 2015). Existing literature

indicates that health shocks are more likely to be prevalent among people from extremely poor households, which results in loss of income, greater treatment tariffs, and high opportunity costs (Meessen, Zhenzhong, Van, Devadasan, Criel, & Bloom 2003). Unexpectedly, members of poor households are likely to have less access to healthcare services and, consequently, receive a lower level of healthcare support from the public sector. Further, it is alarming that 66% of their healthcare costs is borne by the OOP financing mechanism, which gradually increased from 1997 to 2007 (Huda et al. 2014). According to the Bangladesh Demography & Health Survey (BDHS) report in 2011, the per capita healthcare expenditure is \$27, of which approximately two-thirds is financed through OOP payments, which indicates that extremely poor households enjoy no or limited healthcare support (Islam and Biswas 2014). Few studies have indicated the catastrophic healthcare costs related to non-communicable diseases (NCD) and their impact on poverty or economic growth at the household level (Mirelman et al. 2016) although whether and how health shocks impact poverty reduction interventions is a largely unexplored topic to which less attention has been paid.

Considering the scant evidence available, we investigated whether and how health shocks affect poverty reduction interventions targeted to extremely poor households. This study will contribute to the information gap in the discourse on poverty, which will also help develop better poverty reduction programs and strategies.

## **2. Methods and materials**

### ***2.1. Research design***

We used an exploratory qualitative research design for this study.



ACCEPTED MANUSCRIPT

## **2.2. Participants**

The study participants were recruited from among the Economic Empowerment of the Poorest/Stimulating Household Improvements Resulting in Economic Empowerment (EEP/Shiree) project beneficiaries and frontline program staff who implemented the interventions. We conducted focus group discussions (FGDs) with the program staff and project beneficiaries separately in order to prevent the staff from influencing the beneficiaries during the discussion. Among the participants, both male and female beneficiaries were included in the same session because the moderator facilitated a dynamic and interactive discussion where the participants talked to one another by elaborating, clarifying, querying, explaining, agreeing, or disagreeing with the topic. Thus, gender dominance was avoided as the moderator maintained a good balance of controlling and motivating the dominant participants (predominantly males) in the sessions. We conducted 8 FGDs and 12 case studies with household members who participated in the EEP/Shiree interventions—four FGDs and six case studies under each district (Table 1). By applying an inclusion criteria—participants were aged 18 and above and volunteered to participate—we purposively recruited the study participants to address the research objectives. In this process, we invited individuals who showed a proactive interest to share their experiences, ideas, opinions, and time. Further we conducted informal talks/discussions with health providers and/or community leaders to understand the dynamics at play, although we did not include this information in our analysis. Out of four FGDs in each district, three were conducted with program beneficiaries, while one was conducted with the frontline project staff. In each FGD, we included 6–10 participants, a number that is considered to be ideal in qualitative research (Krueger Richard A and Casey Mary Anne 2000).

**Table 1: Methods and participants [to be placed]**

***2.3. Intervention description—EEP/Shiree project***

The Government of Bangladesh (GOB) is committed to achieving Millennium Development Goal 1, which aims at eradicating extreme poverty and hunger by 2015. To achieve this target, the program EEP/Shiree was designed to support the government's efforts. This program was developed as a partnership between the UK Department for International Development (DFID), the Swiss Agency for Development and Cooperation (SDC), and the GOB under the Rural Development and Cooperative Division (RDGD) of the Ministry of Local Government, Rural Development and Cooperatives (LGRD) in 2008 with a focus on achieving sustainable economic empowerment through livelihood development supports for one million people across the country. The aim of this program is to lift members of extremely poor households out of poverty and to improve their resilience to natural disasters, economic shocks, health hazards, and many other adverse circumstances. To achieve these outcomes, EEP/Shiree provided resources to national and international NGOs working in Bangladesh through two separate categories of funds—scale fund and innovation fund. Scale funds are provided to NGOs that have the capacity to facilitate large-scale interventions using tested methods, while innovation funds are provided to those NGOs that offer innovative approaches and initiatives to reduce extreme poverty in Bangladesh.

***2.4. Study time and settings***

This study was conducted between April and August 2016. Data were collected from two scale fund NGOs named Oxfam and Save the Children in Bangladesh (SCiBD), which are

participating in the implementation of interventions. Each of these NGOs has designed interventions to achieve sustainable economic improvements of extremely poor households based on their own approaches, which are tested and implemented in the southern parts of Bangladesh. Oxfam and SCiBD are working in the Pirojpur and Bagerhat districts of Bangladesh. Oxfam is implementing the program by collaborating with a local NGO named “Dak Diye Jai” while SCiBD is implementing the intervention with a local NGO named “CODEC.” Both districts are located in south-western Bangladesh, nearly 300 km from the Dhaka, the capital city.

Oxfam’s program strategy is to form community based organizations (CBOs). Each CBO has an executive committee that comprises a chairman, president, cashier, and general member who meet on a monthly basis to organize group activities and share their views and actions. Each beneficiary maintains a bank account and passbook for savings and loans. The beneficiaries were supplied with input supports that included a mixture of farm and off-farm entrepreneurship such as fisheries, livestock, vegetable cultivation, and grocery shops.

SCiBD’s program strategy is more or less similar to that of Oxfam. The field staff identify potential beneficiaries on the basis of the EEP/Shiree inclusion criteria. Following consultations with potential beneficiaries, particularly considering their skills and vocations, the field staff develop income generating activity (IGA) plans that include livestock, small business, vegetable cultivation, fishing business, and shrimp cultivation. Unlike Oxfam, SCiBD’s beneficiaries voluntarily meet in groups and share their actions, challenges, opportunities, and other emerging issues. However, the group functions were not operated under the structured CBO formation and procedures.

## **2.5. Data collection procedure**

The study participants were selected purposively to achieve the study objectives. The medium of conversation was Bangla—the native language of both the interviewers and participants. The interviews were recorded in audio format. A research officer, who was a graduate in anthropology and public health, moderated the conversations while a research assistant took notes. A semi-structured questionnaire that was piloted beforehand in other settings was used. Both the research officer and assistant were trained and experienced in the qualitative research approach and data collection techniques. Before starting data collection activities, the research team established good rapport with the participants and other community members by describing the purpose of the study and engaging in other informal talk about their daily lives, livelihoods, interesting issues, etc. Each FGD took approximately 90–120 minutes on an average. Several follow-up visits were made in some cases to obtain missing information as well as to further probe some issues.

## **2.6. Data analysis**

We used the thematic analysis approach, which is frequently used in qualitative research (Braun and Clarke 2006). Initially, we translated all these interviews verbatim before translating them into English. We did not use any software; rather, we manually analyzed textual data. We generated “codes”—meaningful and significant information, ideals, or dimensions—concentrating on our research objectives. Thereafter, we looked for a cluster on the basis of the nature of such codes. Finally, once a cluster was formed, we looked for a theme or concept

comprising a few clusters. The researchers independently coded the text in order to increase data validity. We also performed a triangulation of data collection techniques—a methodological mix-up of FGDs and case studies (selected interviews)—to increase the validity.

### **2.7. Ethical consideration**

The study proposal was presented to the ethical review committee of EEP/Shiree. The respective persons reviewed issues involving human subjects and approved the study. We developed a paper-based consent form and obtained signatures of the participants. Verbal consent was obtained and documented through audio recordings. Prior to obtaining consent, we described the study objective, pros and cons, importance of the study, confidentiality, and the participants' rights to leave the conversation at any stage. We provided participants with a telephone number so that they could seek further information if required. Personal and medical information such as participants' name, age, sex, income, healthcare costs, and disease episodes was gathered. Participants' identity (ID) was used throughout the data analysis but was removed before reporting the findings.

## **3. Results**

In this section, we present the socio-demographic (Table 2) characteristics of the study population to contextualize a number of aspects under which the study was conducted. In the later part, we present the results.

**Table 2: Socio-demographic characteristics of FGD participants of EEP/Shiree project beneficiaries in Pirojpur and Bagerhat in 2016 (n=48) [to be placed]**

As shown in the table, the combined median age of FGD participants was 34.29 years, while the average age of the participants in Pirojpur was slightly lower than those of Bagerhat. A total of

48 beneficiaries participated in the FGD (48% males and 52% females). The average monthly household income was BDT 5600±750 in *Pirojpur*, and 6100±590 in *Bagerhat*; (considering 78 BDT=1 US\$). More than half (60%) of the participants received first to fifth grade schooling, while 6% of them received no schooling. The level of education was much lower than the national average. More than half (52%) of the participants were from joint families. The highest number (29%) of participants was provided livestock support such as ducks, chickens, cows, and goats. The second highest number of participants received small-scale business support such as cloth, shrimp, fishing, furniture, etc. The remaining participants received support such as small-scale business of handicraft (17%), rickshaw/van (10%), vegetable/farming (6%), and grocery shop (4%).

Three themes emerged from the data, which we renamed as 1) chronic condition and higher OOP, 2) little/inadequate health service information and health-seeking behavior, and 3) episode of illness and households' poverty. Within these themes, eleven sub-themes ~~were~~ emerged as shown in Table 3.

**Table 3: Emerging themes and sub-themes (to be placed)**

### ***3.1. Chronic condition and higher OOP payment mechanism***

Our data showed that almost all participants reported experiencing the burden of chronic conditions in their households. Such conditions mostly included non-communicable diseases that require continuous medical care and subsequently, prolonged facility-based and family support. Although the extent of such adverse conditions differed between households and had varied effects on their income generating activities (IGAs), the impacts were commonly found to be negative in terms of the economic status and well-being of the household. Participants commonly

reported such chronic illnesses as the most frequent and prevalent causes of failure. Families with such chronic conditions experienced loss of regular income and subsequently had to bear considerable healthcare costs. Participants from all fields reported that chronic disease of the family members, particularly in those who were the primary income earners, incurred considerable expenses due to healthcare. The chronic conditions required long-term treatment and prolonged absence from work. Furthermore, such chronic conditions, particularly in the male earning members, worsened the economic status of the families as it resulted in long-term and/or routine medication. Additionally, female members who underwent surgery due to childbirth and/or uterus tumors/infections reported to incur higher expenses, which was largely beyond the capacity of these families. Most of the household financed the healthcare cost in similar ways; that is, by discontinuing their IGA IGAs, borrowing money from relatives and microfinance institutes, and selling the physical assets of the household. Almost all participants reported that such adverse shocks exposed them to catastrophic healthcare expenses. Table 3 shows the pattern of health shocks, expenditure, and its consequence on the interventions in individual beneficiary households.

**Table 4: Diseases incidence and its consequences on interventions among BHH in 2016 [to be placed]**

Chronic diseases such as uterus tumor/infection, chronic respiratory illness, paralysis, post-cesarean complications, and hypertension/chest disease were more likely to hinder families from achieving economic progress. The table shows that the beneficiary's families mostly experienced chronic diseases (NCD) and spent Bangladesh currency, BDT 4000-350000 (US\$ 52-4487, considering 78 BDT=1 US\$) to improve their conditions. Uterus infection and/or tumor (40%)



were found to be the most frequent NCD among female household members. Other chronic diseases included post-cesarean infection (8%), hypertension, and respiratory illness. The data show that the cost of healthcare expense is much higher for extremely poor families/households, and the situation worsens when the patient receives no and/or little assistance (medicine, surgical expenses, user fees, etc.) from the public healthcare facilities. Yet, almost all episodes of diseases involved a higher opportunity cost as the patient experienced prolonged hospitalization when the earner of the family discontinued IGAs or became irregular in labor work. In a few cases, the patient could not respond to the full course of medicine and other related pathological test and/or follow-up visit due to higher OOP payment. One of the participants stated,

*“I visited many healthcare providers—village doctors, Kobiraj, and homeopath. Finally, a doctor (MBBS) suggested a 6-month treatment course (medication and rest) but I have no money to respond doctor’s advice. I have already spent BDT 12,000 (US\$153). If I wish to continue the treatment, I need to sell my IGA. If I sell my IGA, it will have a negative impact on my family’s daily subsistence.” (A female beneficiary from Bagerhat)*

A parallel observation was made by the program staff. In many cases, chronic diseases are poorly controlled by medication and follow-up visits as many of them cannot afford the expenses. One of the participants stated,

*“It is very common for patients to have loss of follow-up visits and ~~intercepted~~ interrupted medication. This is mainly due to higher healthcare cost” (A field staff from Pirojpur)*

Each family, therefore, experienced higher opportunity cost, which lowered the household income for many months. A member of a poor household described how a sudden illness of her son negatively affected their efforts to improve their economic status.

*My 11-year old son Birek (pseudo name), suddenly stopped talking and showed symptoms of 'mrighi rog' (Epilepsy). Initially, he was taken to a ~~quack~~ quack (village doctor) who suggested transferring him to a 'district hospital'. They (district hospital) referred him to Shatkhir Medical College Hospital (SMCH) as the condition was deteriorating. My son had seven months of hospitalization to improve his condition. Meanwhile, we spent nearly BDT 4 lac (US\$5128) for his treatment. Having no alternative, we sold our IGAs (cattle, chicken, and vegetable garden) and borrowed money from relatives and local cooperatives. [...] EEP/Shiree has tried to help but the sudden illness of the son sunk all their efforts. We are now surviving on ~~our~~ the kindness of others. (A beneficiary from Pirojpur)*

### **3.2. Little/inadequate health service information and health-seeking behavior**

Our data suggest that the illness lasted longer and worsened because most participants lacked adequate health information. In most cases, they sought care from traditional healers and informal healthcare providers who were inappropriate to treat the conditions, which was detrimental to their health. They reported paying more money due the complexity caused by the traditional healers and informal healthcare providers. This was stated by many participants in Pirojpur and Bagerhat.

*We sought treatment from a traditional healer and expected that my son's condition will improve but it deteriorated. Now, he is still sick. He has developed a mental problem. [...] We will have to incur higher costs for the rest of his life" (A beneficiary from Bagerhat)*

Almost all beneficiaries visited the Kobiraj (traditional healers), village doctor (~~quake~~ quack), or local medicine outlet (pharmacy) as primary health service providers. Our data show that the participants could not anticipate the severity of such chronic diseases and assumed that it was a normal episode that required usual intervention; the Kobiraj, village doctor, or medicine outlet shopkeeper was the potential care provider in such cases. Lack of health information triggered their care-seeking behavior, wherein the participant commonly reported to have insufficient health services and information in the communities. Some of the participants even reported not having adequate information and precise idea on when and how to visit Upazila Health Complex (UHC), the first-line hospital of Bangladesh. One of the participants stated,

*“We usually seek care from the pharmacy shopkeeper or village doctor, Kobiraj, homoeopath, or herbalist for general illness. How can I anticipate that for such chronic conditions we need to visit medical professionals? I do not have any information about which facility is better for what.*

*[...] I do not know who can provide good-quality or realistic care for a particular disease such as heart disease, renal failure, and diabetes. [...] We visited the hospital but it was too late; therefore, more money was required to treat the diseases.” (A beneficiary from Pirojpur)*

A similar experience was shared by a participant from Bagerhat as follows.

*“Village doctor and/or medicine outlet are the first destination for people who seek care. I have been seeking care from them since a long time. [...] I do not understand where I should go first for such chronic conditions.” (A beneficiary from Bagerhat)*

One of the program staff shared information about how inadequate health information can make the patients go from provider to provider, which leads to considerable healthcare costs.

*Most of the poor have little information about the availability of care in terms of severity and type of illness. They usually cannot identify the severity of an illness and the need for special care. They go from village doctor, to Kobiraj, to MBBS randomly. [...] Thus, this leads to higher health risk and medical expenses. (A NGO staff from Bagerhat)*

### **3.3. Episode of illness and impoverishment of the household**

The most frequent cause of the failure of the program intervention was the illness of family members. Our data show that the episodes of illness faced by the members of the household led to lower economic improvement and/or being impoverished. However, the occurrence of illness in the primary income earners had a strong impact on the daily income of the household, which led to impoverishment. Illness of the household's income earners led to multiple costs—direct healthcare cost and opportunity cost. In many cases, the opportunity cost led the beneficiaries to discontinue their business and livelihood-related activities. ~~The~~ This further worsened when the illness required special medical care which was not available in local healthcare facilities. In such cases, the household members moved to adjacent divisional towns—usually Khulna and Barishal. The female household members (usually the wife) accompanied the patients when the patient was taken to healthcare facilities, and undertook the role of the family caregivers. We found that a few female beneficiaries accompanied their young children to the hospital that required their physical presence in the hospital premises constantly. Although the male household members did not constantly serve the patient with their physical presence, they regularly visited the respective healthcare facilities. Therefore, they faced problems with the

continuation of business or undertaking other IGA. The discontinuation of their business or inability to undertake other IGA worsened the household's economic status. The situation further deteriorated when the male member suffered from an illness, which required constant care from the female members (usually the wife) along with discontinuing the household's regular income. The following case sheds light into this problem. Such episodes of illness adversely affected their efforts in all intervention aspects. The beneficiaries and NGO staff explained the situations as follows.

*“Whenever we make some savings, it is entirely spent on treatment cost. This is why I am still in extreme poverty.” (A beneficiary from Pirojpur)*

A similar observation was noted in Bagerhat as follows.

*Falling sick is one of the biggest reasons for failure of the interventions. Families with sick members tend to have little or no success. (A NGO staff from Bagerhat)*

In some cases, the episode of illness required family care at home and healthcare facilities, which restricted the beneficiaries from continuing their work. Ultimately, the active beneficiaries and/or income earners remained absent from their daily labor work and received limited income, as expressed by a beneficiary below. The following case describes how health shock pushed Nupur's (EEP/Shiree beneficiary) family from a moderately well-off condition to destitution.

*Nupur's husband met with a road accident and was taken to a **quake quack** (village doctor). He had to undergo a surgical procedure that involved expensive injections—each costing BDT 395 (US\$ 5) for four consecutive months along with other medications. Unfortunately, the surgery led to an infection of the incised areas, which required*

*another surgery. He spent four months being bed-ridden. Subsequently, the family decided to sell 40 decimal of the inherited land to finance their healthcare cost. Due to aging, she had a tumor in the uterus, which cost BDT 45,000 (or US\$576) for a surgical operation. The family had no other option but to break their financial capital (business capital) and discontinue their IGA (cloth shop) for a few months. She was forced to leave her son with a relative as she was not able to feed him.*

Participants ~~from~~ from all FGD and cases stated that the consequences of illness were detrimental, which resulted in failure to achieve economic improvement as was aimed by the implementation of the *EEP/Shiree* interventions.

#### **4. Discussion**

In this study we aimed to understand the effects of health shocks on antipoverty interventions among extremely poor households in two districts of Bangladesh from a poverty reduction project perspective. Our study indicated that an epidemiological transition is likely under way, wherein NCD diseases emerge (Ahsan et al. 2009; Hamid et al. 2014; Khan et al. 2015), which severely affected the economic status of the poor households in the *EEP/Shiree* intervention. Our findings showed that female household members often suffered from chronic diseases, such as uterus tumors, infections, and reproductive complication, which led to financial hardships. Previous studies have indicated that the chronic condition presumably affects the rich quintile and is traditionally thought to be prevalent in wealthy countries (Gupta et al. 2003; Reddy et al. 2007). However, our findings suggest that poor households are heavily affected by the occurrence of chronic diseases, which is inconsistent with the earlier findings. Other studies in Bangladesh and South Asian countries (Biswas et al. 2016; Turin et al. 2013) have indicated that

over the past years, epidemiologic transition is under way, wherein the poor are exposed to increasing vulnerabilities. They have limited or no access to healthcare service for chronic conditions. This further worsens the chronic condition that requires continuous healthcare and prolonged facility- and family-based support that entail greater healthcare costs. As healthcare costs can be catastrophic and public healthcare system remain insufficient and provide unrealistic services, the expenses were largely financed through OOP payment system (Hamid, Ahsan, & Begum 2014), and a majority of the poor households met the required costs through selling their means of livelihood, borrowing money, and selling their physical assets. This finding is concordant with those of international studies (Bhojani et al. 2012; Falkingham 2004; Garg and Karan 2009; McIntyre et al. 2006). For example, Bhojani et al. in India showed that high rate of OOP payment due to chronic conditions further push poor households into poverty. Although Bhojani et al.'s study found that an overall 16% of the households experienced financial catastrophic healthcare expenditure, we assume that the participants in our study might have experienced higher expenditure; it is not possible to quantify the exact percentage of catastrophic expenditure due to the design of this study (qualitative study design). Yet, limited or no studies in Bangladesh have shown the precise number or percentage of households/families that become victims of catastrophic expenses and poverty due to health shocks. Some studies have estimated that chronic diseases alone contribute to 50% of the total disease burden in the household in LMIC (Abegunde et al. 2007). This indicates that extremely poor households lack effective and available interventions that can significantly improve their household economic growth and well-being as stated in the Commission on Macroeconomics and Health (CMH) in 2005 (Jha et al. 2002). Rather, the extremely poor households are more likely to become victims of higher healthcare expense due to chronic disease burden as seen in many other regions of Asia and sub-



Saharan and Caribbean countries (Bales 2013; Dans et al. 2011; Knaul et al. 2011; Samb et al. 2010). However, Gwatkin et al. (Gwatkin et al. 1999) estimated that the burden of communicable diseases (CD) will reduce until 2020 but its benefits might not be equally experienced by the rich and poor, indicating that poor households are more likely to be susceptible to both CD and NCD.

Further, the poor have less or little health service information which results in them seeking care primarily from individuals or facilities that are inappropriate for the particular disease. In many cases, the primary person of contact for illnesses (mostly Kobiraj, quack, or pharmacy shopkeeper) handled the cases with inappropriate knowledge and expertise to manage the problem. Such unskilled service providers contributed to deterioration of the problem and incurred higher expenses for further healthcare. Due to the shortage of facility-based skilled healthcare providers, 67% of the people in rural Bangladesh seek first line care from village doctor (~~quack~~ quack) (Mahmood et al. 2010). Other studies have shown that the village doctor, or drug seller in medical outlet play the vital role for providing care and related information (Haque et al. 2013; Rahman et al. 2015). Our findings are consistent with those of the studies mentioned above, wherein the majority of patients primarily sought care ~~form~~ from informal healthcare providers. The consequence of such behavior had a negative impact on both disease consequences and healthcare costs. Such healthcare behavior can be attributed to the low literacy rate and level of health education of patients (*EEP/Shiree* beneficiaries) and/or inadequate emphasis of the importance of healthcare issue within the program intervention. Our findings further indicate that despite the overwhelming outcomes, public healthcare services face challenge in delivering services to those with chronic conditions.

#### ***4.1. Limitation of the study***



The findings of this study were based on a small sample size in a coastal region of Bangladesh.

Therefore, the generalizability of the findings to other areas might be limited due to the contextual characteristics. Nevertheless, considering the triangulation of methods and participants, we believe that this study provides an in-depth understanding of the effects of health shock on antipoverty interventions in Bangladesh.

#### **4.2. Implications**

Due to the small-scale nature of the study, the findings might be limited to be easily generalized to other contexts. However, the aim of this study was to provide a detailed and in-depth understanding of whether and how health shocks have an impact on the antipoverty interventions among extremely poor households. The findings of this study indicate that despite providing concerted support, many of the beneficiaries failed to achieve optimum outcomes due to health shocks. The occurrence of chronic conditions along with limited or no healthcare information further led them to incur high healthcare costs, which were borne by the households through OOP payment system. The findings implicate that antipoverty initiatives are likely to focus on financial support (asset transfer), wherein the healthcare aspect remains less prioritized. In this context, healthcare support should be considered within the antipoverty intervention program to achieve and sustain the program outcomes.

#### **5. Conclusions**

The findings of this study suggest that health shock led to poor households experiencing failure in achieving sustainable economic empowerment despite the implementation of the antipoverty intervention. The households experienced financial hardships, and this was further deteriorated by the existing health service delivery system. Catastrophic OOP payments led to

impoverishment although realistic livelihood support was provided in line with the program strategy. Most of the households failed to continue their IGAs as they had to arrange for OOP payments by selling off their IGAs and physical assets and accumulating debt. Livelihood support alone was likely to be insufficient to reduce poverty and improve their economic condition; therefore, healthcare support should be considered within the antipoverty intervention to achieve sustainable poverty reduction goals.

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**PUBLIC INTEREST STATEMENT:** The relationship between poverty and illness is well documented. According to the World Health Organization (WHO), in each year, nearly 100 million people are pushed into poverty due to catastrophic healthcare expenditure. In Bangladesh this aspect remains a largely unexplored topic, especially from the perspective of antipoverty interventions. This article explores whether, how, and to what extent health shocks impact the antipoverty interventions targeted to the extremely poor households from a project known as “EEP/Shiree.” Findings indicate that people from extremely poor households mostly encountered episodes of chronic disease that incurred greater healthcare costs, which were largely financed through the out-of-pocket payment system. Members of such households had no option but to sell income generating activities (IGAs), borrow cash from cooperatives, and market physical assets, all of which dragged them into poverty again. Our findings subsequently argue that health needs should be incorporated into antipoverty interventions because livelihood support alone might not be sufficient to lift such households out of poverty.

## Appendix A:

### A1: Guideline for Focused group Discussion (FGD)

- I. Socio-demographic information of the participants (name, age, occupation, education, religion, income, support received, number and age of household members)
- II. To what extent the economic condition of you household has changed since the intervention of EEP/Shiree? (How, why, and why not?)
- III. Did your household face any health shocks/disease during EEP/Shiree intervention? If yeas; what type of health shocks/diseases? What was the initiative? Who was involved in managing these shocks? (Please discuss elaborately when, how, why and why not?)
- IV. What strategies/action did you use to cope up with this shocks/disease? How did you manage these courses of action? (Please discuss elaborately when, how, why and why not?)
- V. In your opinion, how and what extend shock/disease affect household well-being, livelihood support, and/or income generation activities? (Please discuss elaborately when, how, why and why not?)
- VI. In your opinion, what can be done to improve these conditions? (Why and why not?)



## A2: Guideline for case study (selected interview)

- I. Socio-demographic information of the participants (name, age, occupation, education, religion, family structure, income, number and age of household members)
- II. Would you please say something about health shock/disease? (What is meant by shock/disease?)
- III. What type of health shock/disease you experienced/would you please describe your sufferings/pains?
- IV. What strategies/action did you use to cope up with this shocks/disease? How did you manage these courses of action? (Please discuss elaborately when, how, why and why not?)
- V. In your opinion, how and what extend shock/disease affect household well-being, livelihood support, and/or income generation activities? (Please discuss elaborately when, how, why and why not?)



**ABOUT THE AUTHORS:** We the research team, worked with Economic Empowerment of the Poorest/Stimulating Household Improvements Resulting in Economic Empowerment (EEP/Shiree) program in Bangladesh—one of the largest poverty reduction interventions in Bangladesh. Our research focuses on the interconnectedness of health shocks and impoverishment mainly among extremely poor households. The research work in this paper addresses whether and how health shocks affect anti-poverty interventions targeted to extremely poor households that contribute to the information gap in the poverty discourse. Specifically, we are interested in exploring healthcare cost and resilience to poverty among low and middle income households.

**PUBLIC INTEREST STATEMENT:** The relationship between poverty and illness is strong. According to the World Health Organization (WHO), in each year, nearly 100 million people are pushed into poverty due to catastrophic healthcare expenditure which is financed through out-of-pocket payment system. In Bangladesh this aspect remains a largely unexplored topic, especially from the perspective of antipoverty interventions. This article explores whether, how, and to what extent health shocks impact the antipoverty interventions targeted to the extremely poor households from a project known as “EEP/Shiree.” Findings indicate that people from extremely poor households mostly encountered episodes of chronic disease that incurred greater healthcare costs, which were largely financed through the out-of-pocket payment system. Members of such households had no option but to sell income generating activities (IGAs), borrow cash from cooperatives, and market physical assets, all of which dragged them into poverty again. Our findings subsequently argue that health needs should be incorporated into antipoverty interventions because livelihood support alone might not be sufficient to lift such households out of poverty.

**Table 3: Methods and participants**

<b>Data collection tools</b>	<b>Participants</b>	<b>Sites</b>
1 FGD	10 frontline staffs of partner NGO	<i>Pirojpur</i>
2 FGD	EEP/Shiree beneficiaries including 4 males and 2 females	<i>Pirojpur</i>
3 FGD	EEP/Shiree beneficiaries including 5 males and 5 females	<i>Pirojpur</i>
4 FGD	EEP/Shiree beneficiaries including 4 males and 5 females	<i>Pirojpur</i>
5 FGD	9 frontline staffs of partner NGO	<i>Bagerhat</i>
6 FGD	EEP/Shiree beneficiaries including 3 males and 5 females	<i>Bagerhat</i>
7 FGD	EEP/Shiree beneficiaries including 4 males and 3 females	<i>Bagerhat</i>
8 FGD	EEP/Shiree beneficiaries including 3 males and 5 females	<i>Bagerhat</i>
6 Case Studies = selected in-depth interview	EEP/Shiree beneficiaries including 2 males and 4 females	<i>Pirojpur</i>
6 Case Studies = selected in-depth interview	EEP/Shiree beneficiaries including 3 males and 3 females	<i>Bagerhat</i>

**Table 4: Socio-demographic characteristics of FGD participant of *EEP/Shiree* project beneficiaries in *Pirojpur* and *Bagerhat* in 2016 (n=48)**

Characteristics	Sites		Combined
	<i>Pirojpur</i>	<i>Bagerhat</i>	
<b>Median Age (Years)</b>	32.69	33.87	34.29
<b>Sex</b>			
Male	13 (27%)	10 (21%)	23 (48%)
Female	12 (25%)	13 (27%)	25 (52%)
<b>Monthly household income in BDT (mean <math>\pm</math>SD)</b>	5600 $\pm$ 750	6100 $\pm$ 590	5700 $\pm$ 650
<b>Education of the participants</b>			
No schooling	2 (4%)	1 (2%)	3 (6%)
1-5 (Years)	14 (29%)	15 (31%)	29 (60%)
6-10 (Years)	9 (19%)	7 (15%)	16 (34%)
<b>Religion</b>			
Muslim	17 (35%)	8 (17%)	25 (52%)
Hindu	8 (17%)	15 (31%)	23 (48%)
<b>Family type</b>			
Nuclear	14 (29%)	9 (19%)	23 (48%)
Joint	11 (23%)	14 (29%)	25 (52%)
<b>IGAs support</b>			
Small business	5 (10%)	8 (17%)	13 (27%)
Livestock	11 (23%)	3 (6%)	14 (29%)
Grocery shop	2 (4%)	0 (0%)	2 (4%)
Rickshaw/van	3 (6%)	2 (4%)	5 (10%)
Vegetable/farming	2 (4%)	1 (2%)	3 (6%)
Handicraft (Bamboo)	0 (0%)	8 (17%)	8 (17%)
Others	2 (4%)	1 (2%)	3 (6%)

**Table 3: Emerging themes and sub-themes**

	<b>Major themes</b>		
	<b>Theme 1</b>	<b>Theme 2</b>	<b>Theme 3</b>
	<b>chronic condition and higher OOP</b>	<b>little/inadequate health service information and health seeking behaviour</b>	<b>episode of ill-ness and households' impoverishment</b>
Sub-themes	Experienced/need to undergo chronic condition i.e. uterus tumor, chronic respiratory illness, paralysis, post caesarean complication, hypertension/chest disease	Little and/no information about available healthcare services specially for public healthcare facilities	Lost daily income and experienced impoverishment caused by absence of works following health shocks
	Stayed long period in hospitals/clinics for the recovery	Sought healthcare to different facilities at different time	Experienced multiple healthcare costs—direct cost and opportunity cost
	Expensed larger amount of money for treatment	Traditional providers— <i>Kobiraj</i> , village doctor, medicine outlet shopkeeper were the primary healthcare providers	Sold out/discontinued 'income generating activities' (IGAs) to bear healthcare cost
	Cost was borne by the service user (patients/households)	Multiple visits incurred larger cost and deteriorated the condition	

**Table 4: Diseases incidence and its consequences on interventions among EEP/Shiree BHH in 2016**

<b>Type of illness/ health shock</b>	<b>Gender</b>	<b>Cost of illness</b>	<b>Consequences</b>
Uterus tumor/ infection	Female	Up to BDT 4,000- (US\$ 52)	Loss of daily/regular income/Opportunity cost
Chronic respiratory illness/ paralyzed	Male, female and child	Up to BDT 350,000 (US\$ 4487)	Loss of Income Generation Activities (IGAs) (sold out)/ Opportunity cost
Post C-section complication	Female	Up to BDT 40,000 (US\$ 512)	Discontinuation of Income Generation Activities (IGAs)/ Opportunity cost
Hypertension/chest pain	Male/Female	Up to BDT 20,000 (US\$ 256)	Breaks of saving/ Opportunity cost
Others diseases occurrence	Male, female and child	Up to BDT 70,000 (US\$ 897)	Debt/selling household assess (land/live stocks)/ Opportunity cost



ACCEPTED MANUSCRIPT